A COMPONENT ANALYSIS OF THE EFFECTS OF CONTINGENT SOCIAL ATTENTION ON STEREOTYPIC BEHAVIOR IN BLIND RETARDATES

An Abstract of a Thesis by
Linda E. Thompson
May 1976
Drake University
Advisor: Mary Ann Powers

The problem: The components comprising contingent social attention were examined for their effects on stereotypic behaviors in blind retardates.

Procedure: Social attention was tested as a positive reinforcer for three blind institutionalized retardates before treatment conditions began. The effect of verbal praise on the performance of three motor exercises was assessed. During treatment conditions, the effects of the experimenter's presence in the treatment room, noncontingent conversation with the experimenter, contingent praise for not emitting stereotypies during a prescribed time interval, and noncontingent conversation plus contingent praise were examined for all subjects. A reversal procedure was implemented with experimental conditions followed by a return to baseline phase. Overcorrection procedures were implemented when no effects of the above conditions on stereotypic behavior were observed. Data were taken on the ward of the institution to test for generalization of treatment effects on stereotypic behavior outside the experimental sessions.

Findings: For the reinforcer test, a functional relationship was demonstrated between choice of exercise and social reinforcement. Consequation of a particular response selection with verbal praise resulted in a higher frequency of selection than when selection of other responses was consequated. During treatment conditions, stereotypic responses did not decrease until contingent praise for not emitting stereotypies was presented. Overcorrection procedures were necessary to reduce the frequency of stereotypic responses in one of the three subjects. Generalization of treatment effects on stereotypic behavior to the ward was not demonstrated.

Conclusion: If social attention has been demonstrated to be a positive reinforcing stimulus, contingent verbal praise for not emitting stereotypies should be considered as an effective method for decreasing stereotypic responding in blind

institutionalized retardates. The experimenter's presence and noncontingent conversation appeared to have little or no effect on stereotypic responding.

Recommendations: Further research would include generalization of treatment effects outside the treatment sessions. To aid generalization of effects across situations and persons, similar procedures could be implemented using institutional staff and residents as paraprofessionals both on the ward and in school settings.

A COMPONENT ANALYSIS OF THE EFFECTS OF CONTINGENT SOCIAL ATTENTION ON STEREOTYPIC BEHAVIOR IN BLIND RETARDATES

A Thesis

Presented to

The School of Graduate Studies

Drake University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

---

by

Linda E. Thompson

May 1976

A COMPONENT ANALYSIS OF THE EFFECTS OF CONTINGENT SOCIAL ATTENTION ON STEREOTYPIC BEHAVIOR IN BLIND RETARDATES

by

Linda E. Thompson

Approved by Committee:

Mary Ann Powers
Chairperson

W. Scott Wood

Dean of the School of Graduate Studies

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Stereotypic behaviors have been defined as "repetitious, topographically invariant motor behaviors or action sequences in which reinforcement is not specified or is noncontingent and the performance of which is regarded as pathological" (Baumeister & Forehand, 1973). Berkson and Davenport (1962) indicate that two-thirds of a randomly selected group of institutionalized retardates emit some form of stereotypic behavior. Further, blind individuals have been found to emit more stereotypies than those who have sight (Berkson & Davenport, 1962).

Lovaas, Litrownik, and Mann (1971) have indicated that increased response latencies to auditory stimuli are associated with the presence of stereotypic behaviors in mute children. Inverse correlations have been demonstrated between stereotypic behavior and the movement of experimental objects placed near the subject (Davenport & Berkson, 1963; Berkson & Mason, 1964). Suppression of stereotypies by slapping the subject's hand each time a stereotypic response occurred had been found to produce an increase in correct responding during acquisition of discriminative behavior (Koegel & Covert, 1972). Subjects learned to bar press when a light and tone were presented and to refrain from responding when the light and tone were not presented only when stereotypies were suppressed.

Various procedures to reduce or eliminate stereotypic behavior have been implemented with limited degrees of success. Baumeister and Forehand (1972) significantly decreased stereotypic behaviors in a study using contingent verbal commands ("stop rocking") on retardates able to respond to simple verbal stimuli. Mean number of body rocks decreased from 17.0 during baseline to 0.2 during treatment conditions. Risley (1968) decreased rocking in an autistic child from 0.94 per minute in the first session to 0.03 in the tenth session by contingently shouting at ("stop that") and shaking the child whenever stereotypies were emitted.

Lovaas, Schaeffer, and Simmons (1965) completely suppressed stereotypic behavior in two schizophrenic children by delivering shock of 1-second duration contingent upon stereotyped and tantrum behaviors. A slight increase was observed after 11 months but behaviors were again eliminated following the presentation of one noncontingent shock. The effect of contingent shock on stereotypic behavior of three severe retardates was investigated by Baumeister and Forehand (1972). Rates of stereotypic behavior decreased from averages of 22.7, 25.3, and 35.9 responses per minute during baseline to 1.6, 5.1, and 0.1 responses per minute during treatment conditions. However, effects did not generalize to an adjacent room similar to the experimental room.

Foxx and Azrin (1973) proposed a method called overcorrection as an efficient and effective method for reducing

stereotyped movements. In short, the rationale involved intense practice of a related but "correct" form of behavior. In the case of a severely retarded child exhibiting high rates of nonfunctional headweaving, overcorrection was contingent upon the emission of the stereotypic behaviors. The trainer clasped the retardate's head to stop the stereotyped movement each time the child engaged in the headweaving behavior. Verbal instruction was used to teach the child to move her head up, down, or straight. Manual guidance of these appropriate head movements was used and then gradually faded out so the responses were under verbal control. Foxx and Azrin (1973) demonstrated four cases in which stereotypies were significantly suppressed or eliminated by these procedures. To compare overcorrection procedures with alternative methods of suppressing stereotypies, Foxx and Azrin studied reinforcement of non-mouthing behavior with edibles and praise. A severe retardate was reinforced whenever 10 seconds elapsed without mouthing. When compared to contingent slaps, noncontingent reinforcement, and distasteful solutions, reinforcement of non-mouthing behavior was one of the least effective procedures in decreasing stereotypies while overcorrection was the most effective method. A study by Azrin, Kaplan, and Foxx (1973) using autistic adults as subjects reported similar results with overcorrection procedures.

Though successful in suppressing stereotypic behaviors,

such procedures often are time-consuming (Baumeister & Forehand, 1972; Risley, 1968; Foxx & Azrin, 1973; Azrin, et al., 1973); situation-specific (Baumeister & Forehand, 1972), or require painful physical punishment (Lovaas, et al., 1965; Baumeister & Forehand, 1972).

Mulhern and Baumeister (1969) demonstrated a gradual reduction in stereotypies in two severe retardates by reinforcing with edibles an incompatible behavior, i.e., sitting still. Discriminative stimuli informed the retardates that while emitting stereotypic responses no reinforcement was available. Rates decreased after treatment to approximately one-half of those seen during baseline conditions.

Repp, Deitz, and Speir (1974) investigated the effects of a differential-reinforcement-of-other-responding (DRO) procedure in decreasing stereotypies. In an ABAB design using "No!" in all four conditions, Repp, Deitz, and Speir reduced stereotypic behavior in three severe retardates by differentially reinforcing other behavior with hugs and praise. If a stereotypic response was not emitted during the prescribed time interval, a bell rang and the teacher verbally praised and hugged the subject for 2 or 3 seconds. If a stereotypic response did occur the teacher said, "No!" and the timer was reset. DRO procedures decreased stereotypic responding to an average of 1/100 of baseline levels.

The purpose of this study is to assess the effect of

contingent social attention on stereotypic behavior in blind institutionalized retardates. Verbal praise was first tested for its effectiveness as a reinforcing stimulus for each subject before the experimental conditions began. This was believed necessary because previous studies utilizing verbal praise as a consequent stimulus in controlling behavior simply assumed that the stimulus was reinforcing to the subject, and that the effect or lack of effect of the treatment conditions could be attributed to the procedure rather than to that stimulus used as a potential positive reinforcer.

In the study by Repp, et al. (1974), it is possible that even though "No!" was used in all treatment phases it was a variable responsible for the authors' success in decreasing stereotypies. This study seeks to decrease stereotypic behavior through the use of social attention alone. Further, no aversive techniques are implemented, unless one considers the absence of positive reinforcement aversive. A component analysis of social attention has been demonstrated to aid assessment of the responding in retardates. The effects of the experimenter's presence, noncontingent conversation, contingent praise for not emitting stereotypies, and noncontingent conversation plus contingent praise were examined as components of verbal praise. Components of verbal praise were not examined in the above studies for their in-

dividual effects on stereotypic behavior.

CHAPTER 2

METHOD

Subjects

Three institutionalized female blind retardates with histories of stereotypic behavior served as subjects. S_1, S_2, and S_3 were 17, 21 and 28 years old respectively. All subjects had been tested and found to be severely retarded on both the adaptive and intellectual scales of the Adaptive Behavior Scale. Except for blindness, the subjects had no physical handicaps. None of the subjects were on medication. All subjects had acquired functional speech and attended institutional blind school classes.

Reinforcer Test: The effect of social attention on behavior

The effect of verbal praise on the performance of three motor exercises was assessed before treatment sessions were initiated.

Response definitions. Arms up was defined as the movement of both arms straight over the subject's head and back to their original lap position. Five up movements constituted one response. Hand clap was defined as the clapping together of the subject's hands. Five claps constituted one response. Leg kick was defined as the movement of the foot from the floor at least 5 inches in any direction and the return of that foot to its original position. Five kick movements constituted one response. It was necessary for

each response to be comprised of five motor repetitions in order to differentiate the subject's exercise selection from stereotypic behaviors also occurring during the trials.

Procedure. The three motor exercises as defined above were demonstrated to each individual subject at the beginning of every session by using physical prompts to guide the subject through the correct motor responses. Each exercise was prompted for five repetitious movements while the experimenter counted each movement aloud. Sessions took place in the the treatment room occupied by the subject and the experimenter. Each session consisted of 25 unprompted trials. Each condition was a minimum of 3 sessions. The number of sessions in each condition varied with each subject and was dependent on the subject's variability of responding.

Baseline. The subject was instructed to select and perform one of the three previously prompted exercises while the experimenter counted each movement aloud to five. The subject's selected response was recorded. After three trials with 10 seconds between each trial, the experimenter again physically prompted each of the three exercises. Three more unprompted trials followed, after which a third demonstration was given if the subject failed to perform a particular response or had not yet performed a particular response correctly. Further demonstrations were given every three trials

until the subject correctly self-initiated each exercise at least one time during each baseline session. No reinforcement was given during baseline conditions.

Condition I: The effect of verbal praise on the response with the lowest frequency during baseline conditions. The subject was instructed to select and perform any one of the three exercises, but was verbally praised ("Oh, that's good, _____. I like that.") for performing that exercise with the lowest frequency during baseline conditions. The remaining two exercises were not reinforced. No trials were prompted. Selected responses were recorded.

Condition II: The effect of verbal praise on the response with the second lowest frequency during baseline conditions. The subject was instructed to select and perform any one of the three exercises but was verbally praised ("Oh, that's good, _____. I like that.") for performing that exercise with the second lowest frequency during baseline conditions. The remaining two exercises were not reinforced. No trials were prompted. Selected responses were recorded.

Condition III: The effect of verbal praise on the response with the highest frequency during baseline conditions. The subject was instructed to select and perform any of the three exercises but was verbally praised ("Oh, that's good, _____. I like that.") for performing that exercise with

highest frequency during baseline conditions. No trials were prompted. Selected responses were recorded.

Because of the high rates of stereotypic behavior and the possibility of the behavior being incompatible with attending behavior, knee pats were used in conjunction with praise for S_1 in order to test the combined stimuli as a reinforcer. The subject's blindness made it impossible for the experimenter to withdraw social attention by turning the head away in order to consequate the high rates of inappropriate behavior.

Treatment

Response definitions. Headweaving was defined as a left-right turning of the head such that each turn to the right constituted one headweave. Rocking was defined as a forward-backward movement of the body while in sitting position, with the shoulders moving at least 2 inches in each direction respectively such that each forward movement constituted one rocking response. Handwaving was defined as the movement of the hand to the head above mouth level and moving one or more of the fingers up and down at least one inch in each direction. Each downward movement of the fingers constituted one handwave.

Recording. The experiment was conducted in a room measuring 8' x 12' occupied by the subject, the experimenter, and occassionally an observer. Sessions were conducted at

the same time twice daily for 10-15 minutes. Individual subjects were brought into the treatment room and seated at a desk. During each experimental phase, the frequency of headweaving as defined above was recorded for S_1, handwaving for S_2, and rocking plus handwaving for S_3. The frequency of stereotypic behaviors was recorded by the experimenter for a minimum of 6 sessions per phase.

Phase A: Baseline. Subjects were instructed to remain seated in the treatment room until the experimenter returned. Subjects were observed through a glass window in the door of the treatment room. No reinforcement was given during baseline conditions. Inappropriate behaviors such as headweaving, rocking, and handwaving were not consequated. Stereotypic responses were recorded as above.

Phase B: The effect of the experimenter's presence on stereotypic behavior. Subjects were instructed to sit quietly in the treatment room with the experimenter sitting within reaching distance. No conversation other than an exchange of greeting before and after each session took place. Stereotypic responses were recorded.

Phase C: The effect of noncontingent conversation with the experimenter. Before the study was initiated, thirty questions relating to the subject's daily activities and encounters were written on individual index cards

(Appendix A). The standard question cards were shuffled by the experimenter before each session to assure random order and card selection. The questions were delivered in the shuffled order to the subject during the entire session. Questions included:

"What did you do in school today?"

"What did you do last night?"

"What kinds of things do you like to do in the summer?"

Questions were delivered 5 seconds after the end of the subject's response to the previous question. Questions were repeated if the subject failed to answer within 10 seconds. Ten seconds following a second no response resulted in the presentation of the next question to the subject. Inappropriate or incorrect verbal responses were treated as no responses. Stereotypic responses were recorded.

Phase D: The effect of contingent praise on stereotypic behavior. Prior to the beginning of the study, six sentences of verbal praise were written on individual index cards (Appendix B). The standard "praise cards" were shuffled by the experimenter before each session to assure random order. The experimenter read the two top praise cards from the deck contingent on the subject not emitting a stereotypic response during a precribed time interval (e.g., "_____, that's really good when you're not _____

your _____." or "Oh, I like it when you're not _____ your _____."). The two cards were then placed at the bottom of the pile and were not used again until all 6 cards had been used and the deck reshuffled.

No other conversation occurred. DRO schedules for contingent praise were individually established following data examination form Phase C. Praise was delivered on a $DRO_{15"}$ schedule for S_1, $DRO_{60"}$ for S_2, and $DRO_{30"}$ for S_3. Stereotypic responses were recorded.

Knee pats were used on a $DRO_{30"}$ schedule in conjunction with praise for S_1.

Because of suppression of stereotypic responses, the frequency of reinforcement was reduced for S_2 during most of Phase D. Interreinforcement intervals were increased from a $DRO_{60"}$ to a $DRO_{120"}$ schedule. Schedules were not changed for the remaining subjects.

Phase E: The effect of noncontingent conversation plus contingent praise on stereotypic behavior. Each subject was asked questions by the experimenter as described in Phase C. Praise was contingent upon the occurrence of no stereotypic responses during the prescribed time interval as described in Phase D. DRO schedules were the same as delivered during the last sessions in Phase D. Stereotypic responses were recorded.

Because of suppression of stereotypic responses during phase E, interreinforcement intervals were increased for S_2 from a $DRO_{120"}$ to a $DRO_{240"}$ and for S_3 from a $DRO_{30"}$ to a $DRO_{45"}$. As a probe the interreinforcement interval for

S_3 was further increased to a $DRO_{60"}$.

Phase F: The effect of overcorrection procedures on stereotypic behavior. Overcorrection procedures as demonstrated by Azrin, et al. (1973) and Foxx and Azrin (1973) were implemented with S_1 because of the lack of effect observed during previous procedures. The session timer was stopped each time a headweaving response occurred. The experimenter clasped the subject's head for 5 seconds and said, "No, _____, don't move your head like that." The experimenter instructed the subject to move her head in one of the three appropriate positions, head up, head down, or head straight. The experimenter physically guided and held the head in the correct position for 15". Instructions and physical guidance for head up, down, or straight were presented in random order for 15" each. Physical guidance was gradually reduced so that appropriate responses were under verbal control. The length of each overcorrection interval following a stereotypic response was two minutes. The length of overcorrection was decreased from two minutes to one minute to thirty seconds contingent upon successively lower frequencies of stereotypic responses. The time was reset following each overcorrection interval. Stereotypic responses were recorded during the time when overcorrection procedures were not in progress.

Experimental design. A reversal procedure was implemented with each experimental phase followed by a return to

baseline. Each phase was minimum of 6 sessions. The length of each phase varied with each subject and was dependent upon the variability to the data. The following experimental sequences were implemented for the three subjects:

S_1 ABACADAEAF

S_2 ABACADAE

S_3 ABACADAEAE

Generalization. To test for generalization of treatment effects outside the the experimental sessions, the frequency of stereotypic behaviors as defined above was recorded on each of the three subjects on the ward of the hospital. Data were recorded for 10-15 minutes on all days that the subjects were on the ward. The generalization sessions took place at the same time every day and were scheduled when the subjects were in a free-play environment. Generalization data were always recorded before treatment sessions began for that day. The subjects were unaware of the experimenter's presence.

Reliability: Reliability was taken by an independent observer on all subjects at least once during each experimental phase. Reliability was calculated as the smaller number of stereotypies observed over the larger number observed time 100. Reliability for S_1 ranged from 88.0% to 100% and averaged 95.9%. Reliability for S_2 ranged from 86.0% to 100% and averaged 94.3%. Reliability for S_3

ranged from 82.3% to 100% and averaged 95.5%.

CHAPTER 3

RESULTS

Reinforcer Test

Figure 1 indicates the number of motor responses emitted by each subject during each condition. For all subjects, a functional relationship between choice of exercise and social reinforcement was demonstrated. Consequation of a particular response selection with verbal praise resulted in a higher frequency of selection of that response than when selection of other responses was consequated.

Treatment

Figures 2, 3, and 4 indicate the number of stereotypic responses emitted by each subject during each treatment phase. For Subject 2 and 3, Phase D (contingent praise) and Phase E (noncontingent conversation plus contingent praise) decreased or eliminated stereotypic responses. For Subject 1 only Phase F (overcorrection procedures) was effective in decreasing stereotypies to near-zero levels.

As illustrated in Figure 2, stereotypic responses for Subject 1 during Baseline I varied from 5.3 to 22.3 and averaged 13.0 responses per minute. During Phase B (the experimenter present in the room) responses varied from 12.0 to 25.6 with

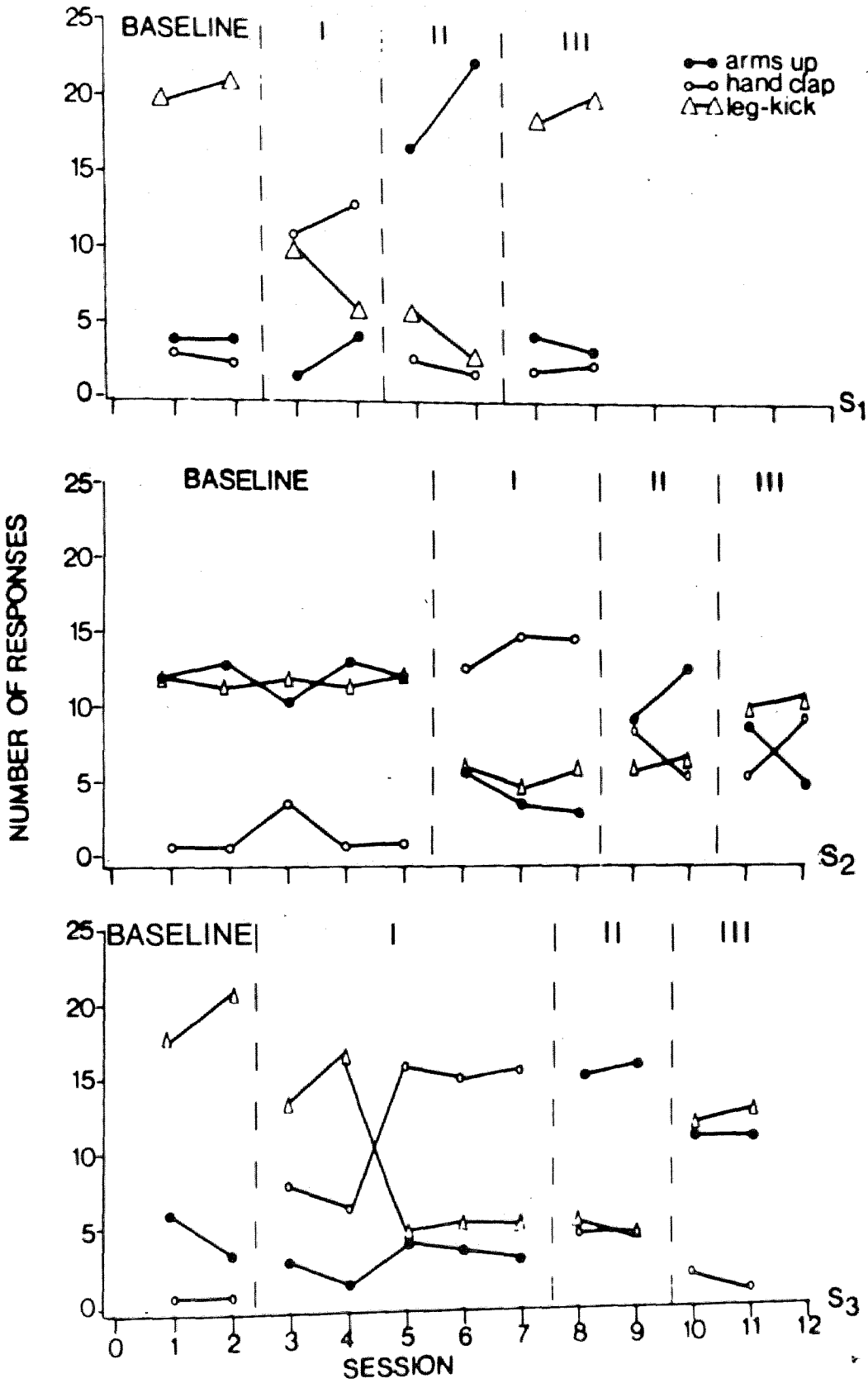

Figure 1. Reinforcer Test: the effect of verbal praise on the selection of motor responses for Subjects 1, 2, and 3.

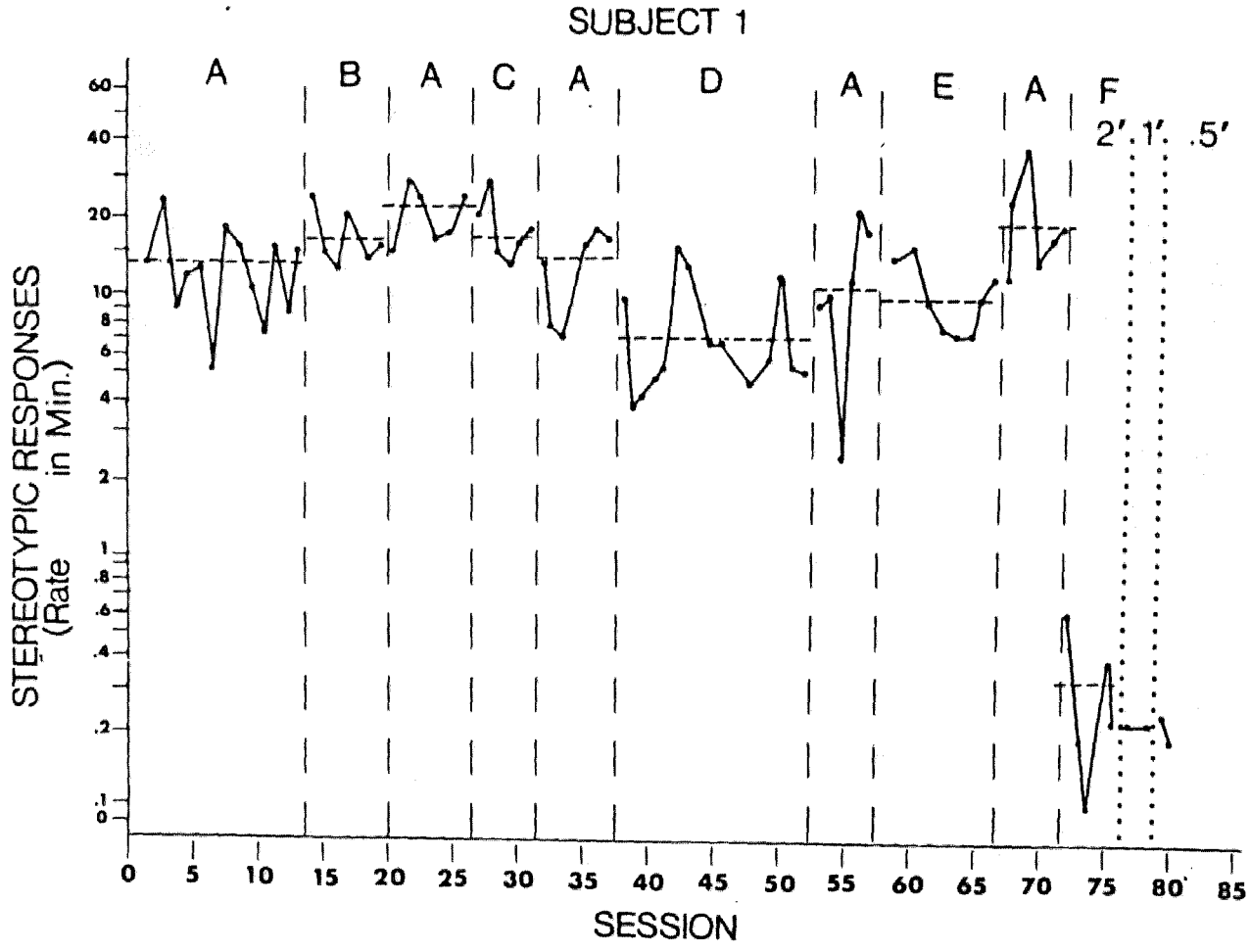

Figure 2. The rate of stereotypic responses for Subject 1 during A baseline, B experimenter's presence, C noncontingent conversation, D contingent praise, E non-contingent conversation plus contingent praise, and F overcorrection (2', 1', .5' lengths) phases.

a mean of 17.3 responses per minute. Baseline II showed an increase in responding, with responses varying between 15.4 and 24.6 and averaging 18.9 responses per minute. During Phase C (conversation with the experimenter) stereotypic responses varied between 13.2 and 26.0 and averaged 17.6 responses per minute. Responses during Baseline III varied between 7.0 and 17.6 and averaged 12.9 responses per minute. During Phase D (differential reinforcement of other behavior ($DRO_{15"}$)) responses varied between 4.0 and 15.3 per minute and the mean decreased to 7.38. Baseline IV illustrated an increase in range with responses varying between 2.9 and 21.1 and the mean increasing to 12.3 responses per minute. During Phase E (praise given contingently on a $DRO_{15"}$ schedule for not emitting stereotypies during a conversation period) responses varied from 7.0 to 14.8 and averaged 11.1 responses per minute. Baseline V showed an increase, with responses varying between 11.8 and 27.6 and averaging 18.9 responses per minute. During Phase F (use of overcorrection procedures) a decrease in responding to near-zero levels was seen. Response rates ranged from 0.13 to 0.66 and averaged 0.27 responses per minute when the overcorrection intervals decreased from 2 minutes to 30 seconds.

During Baseline I for Subject 2, stereotypic responses varied between 0.6 and 14.6 and averaged 5.7 responses per minute (See Fig. 3). During Phase B (the experimenter present

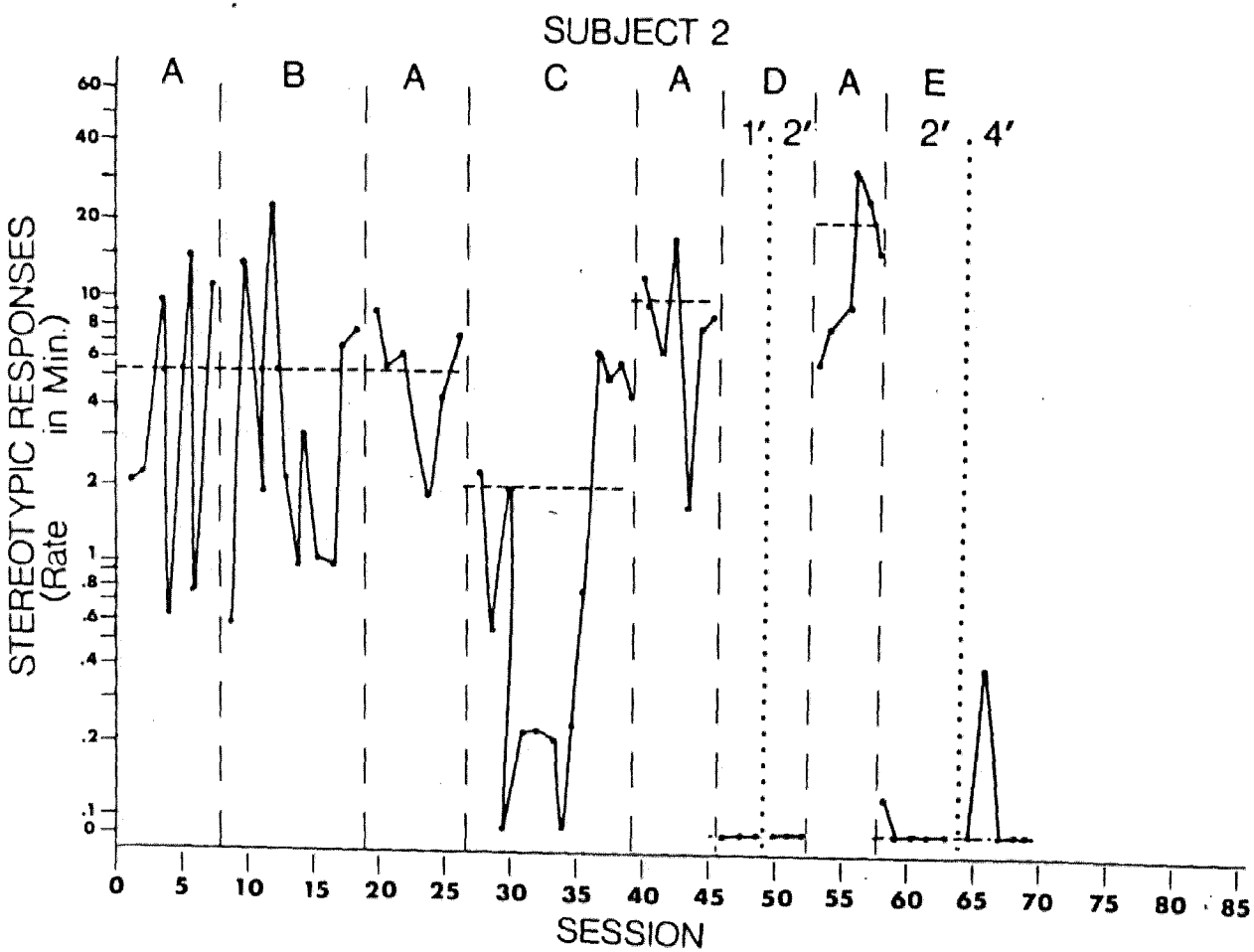

Figure 3. The rate of stereotypic responses for Subject 2 during A baseline, B experimenter's presence, C noncontingent conversation, D contingent praise (DRO 1', DRO 2'), E noncontingent conversation plus contingent praise (DRO 2', DRO 4') phases.

in the room) responses varied between 0.66 and 22.2 and averaged 5.5 responses per minute. During Baseline II a decrease in the range of responses was seen, with responses varying between 1.8 and 7.8 and averaging 5.3 per minute. During Phase C (noncontingent conversation with the experimenter) a decrease in responding was seen with responses varying between 0.0 and 6.4 and averaging 2.2 responses per minute. An increase in responding was seen during Baseline III, with responses varying between 1.6 and 19.9 and averaging 9.7 per minute. Stereotypic responses were completely suppressed during the 6 sessions of Phase D (differential reinforcement of other behavior $DRO_{60"}$). Responses increased during Baseline IV, varying between 6.5 and 27.6 and averaging 17.1 responses per minute. During Phase E (praise given contingently for not emitting stereotypies during a conversation period) responses decreased to zero or near-zero levels. Responses varied between 0 and 0.53 and averaged 0.06 responses per minute as the DRO schedule increased from 120" to 240".

During Baseline I for Subject 3, stereotypic responses varied between 0 and 26.2 and averaged 5.3 responses per minute (See Fig. 4). During Phase B (the experimenter present in the room) responses varied from 0.13 to 30.0 and averaged 6.3 responses per minute. Baseline II showed an increase in responding with responses varying between 2.0 and 25.2 and averaging 21.1 responses per minute. During Phase C (conversation with

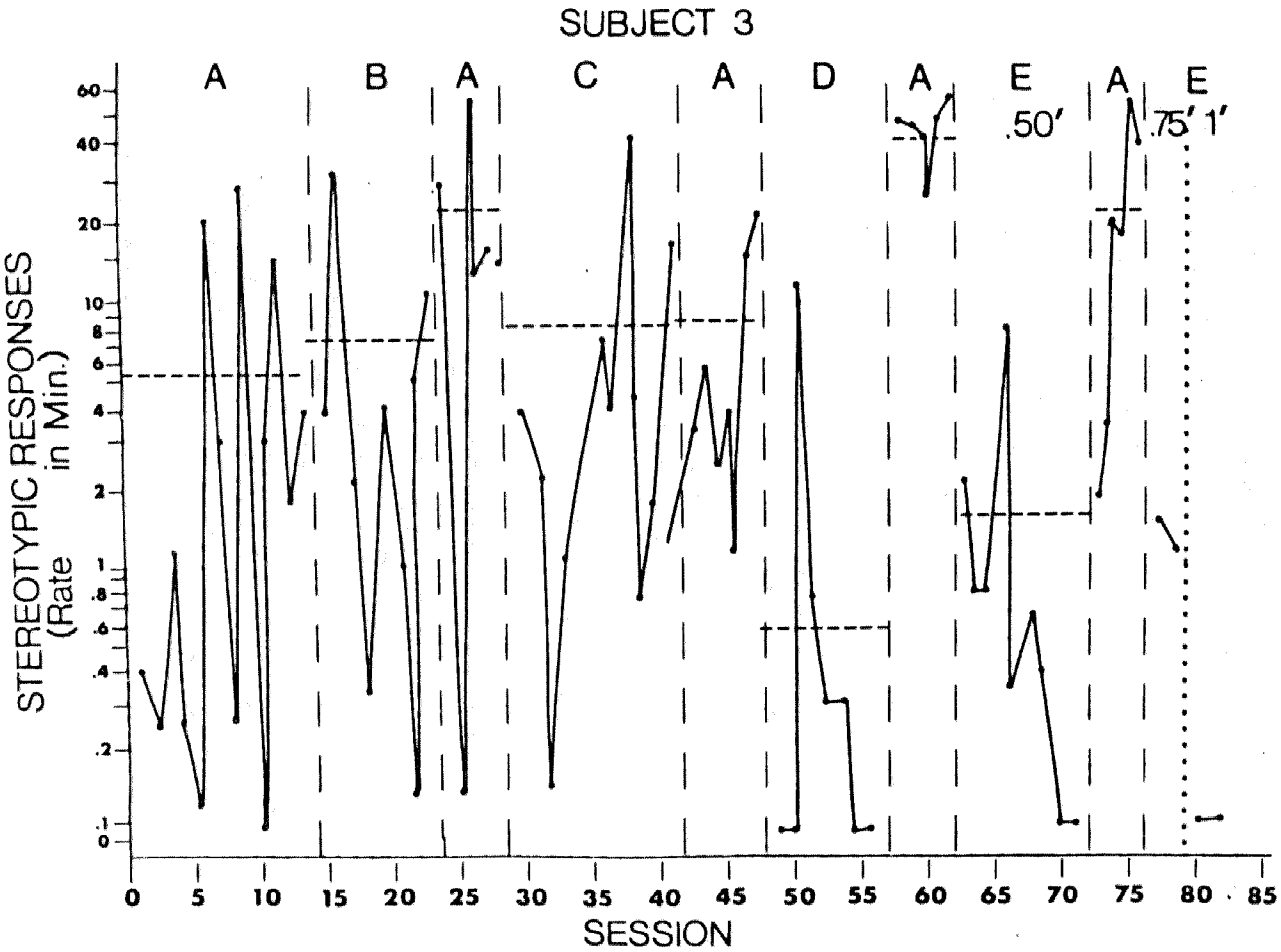

Figure 4. The rate of stereotypic responses for Subject 3 during A baseline, B experimenter's presence, C noncontingent conversation, D contingent praise, and E noncontingent conversation plus contingent praise (DRO .50',DRO .75',DRO 1') phases.

the experimenter) responses varied between 0.15 and 42.4 and the mean decreased to 8.0. Responses during Baseline III varied between 1.0 and 24.8 and averaged 8.9. During Phase D. (differential reinforcement of other behavior (DRO_{30}")) responses varied from 0 to 10.0 and the mean decreased to 1.44 responses per minute. Baseline IV illustrated an increase in range with responses varying between 24.0 and 50.0 and averaging 36.3 responses per minutes. A decrease in responding was seen during Phase E (praise given contingently on a DRO_{30}" schedule for not emitting stereotypies during a conversation period). Responses varied from 0.0 to 7.9 and averaged 1.3. Baseline V showed an increase in responding with responses varying between 1.46 and 48.8 and averaging 19.51 responses per minute. A return to Phase E showed a decrease in stereotypic responding to near-zero levels. Responses varied between 0.07 and 1.26 and averaged 0.61 responses per minute as the DRO schedule increased from 45" to 60".

Generalization

Significant decreases in stereotypic responding during the generalization period were not demonstrated.

CHAPTER 4

DISCUSSION

Stereotypic responses for Subjects 2 and 3 did not decrease until contingent praise for not emitting stereotypies was presented. The experimenter's presence and noncontingent conversation with the experimenter appeared to have little or no effect on stereotypic responding. Noncontingent conversation plus contingent praise, however, reduced stereotypic responding to levels similar to those observed during contingent praise conditions. For Subject 1, overcorrection procedures were necessary to reduce the frequency to stereotypic responding.

The DRO procedure was successful in reducing stereotypic behavior for 2 of the 3 subjects in the study. The procedure was implemented with no difficulty and possessed no observable aversive qualities. Though no data were it should be noted that each of the subjects had frequently asked to start the sessions and often times asked if they could return to the treatment room for a second or third session that day. No subject had to be asked more than one time to accompany the experimenter to the treatment room.

Use of a component analysis of social attention demonstrated that the experimenter's presence in the treatment room or the experimenter's noncontingent conversation with the subject had little or no effect on stereotypic responding. The component analysis illustrates that if social attention has been demonstrated to be a positive

reinforcing stimulus, contingent verbal praise for not emitting stereotypies should be considered as an effective method for decreasing stereotypic responding in blind retardates. Unlike previous studies (Baumeister, et al., 1972; Risley, 1968; Foxx & Azrin, 1973; Azrin, et al., 1973; Lovaas, et al., 1965; Repp, et al., 1974) stereotypic responding was decreased in a time-efficient and non-aversive method. No potentially confounding variables were used in conjunction with the DRO procedure.

It is difficult to speculate why, even though social attention was demonstrated to be a positive reinforcer for Subject 1, overcorrection procedures were necessary to decrease stereotypic responding. Knee pats were tested as reinforcing stimuli in conjunction with verbal praise because of the extremely high rate of stereotypic responding and the possiblity of such rates being incompatible with attending behavior. The knee pats were unnecessary for during Phase D (contingent praise) the DRO 30" schedule was seldom reached by the subject and during Phase E (noncontingent conversation plus contingent praise) the schedule was never reached. Perhaps kneepats on a $DRO_{5"}$ or $DRO_{10"}$ would have proven successful in decreasing stereotypic responses when used in conjunction with contingent praise.

Further research would include implementing the DRO procedure outside the treatment room and expanding its use

to ward, school and home environments; the procedure is simple and non-aversive to implement. To aid generalization of the treatment effects across situations and persons and to increase social interaction in numerous settings, similar procedure could be implemented using staff members and residents as paraprofessionals in changing inappropriate behaviors.

It is important to note the great increase in stereotypy rate during return-to-baseline conditions following rate decreases during experimental conditions for Subjects 2 and 3. Further investigations and perhaps ethical considerations involving target behavior changes are indicated.

In summary, the study demonstrated the use of contingent praise for not emitting stereotypies and noncontingent conversation plus contingent praise as independent variables to be considered in the successful decreasing of stereotypic responding. The DRO procedure was neither time-consuming to the staff nor observably aversive to the client and leaves many research areas yet to be examined.

REFERENCES

Azrin, N.H., Kaplan, S.J., & Foxx, R.M. Autism reversal: eliminating stereotyped self-stimulation of retarded individuals. American Journal of Mental Deficiency, 1973, 78, 241-248.

Baumeister, A., & Forehand, R. Effects of contingent shock and verbal command on body rocking of retardates. Journal of Clinical Psychology, 1972, 28, 586-590.

Baumeister, A., & Forehand, R. Stereotyped acts. In International Review of Research in Mental Retardation Vol.6. (Ed. N.R. Ellis). New York: Academic Press, 1973, 55-96.

Berkson, G., & Davenport, R. Stereotyped movements of mental defectives: initital survey. American Journal of Mental Deficiency, 1962, 66, 849-852.

Berkson, G., & Mason, W. Stereotyped movements of mental defectives: effects of toys and the character of acts. American Journal of Mental Deficiency, 1964, 68, 511-524.

Davenport, R., & Berkson, G. Stereotyped movements of mental defectives: effects of novel objects. American Journal of Mental Deficiency, 1963, 67, 879-882.

Foxx, R.M., & Azrin, N.H. The elimination of autistic self-stimulatory behavior by overcorrection. Journal of Applied Behavior Analysis, 1973, 6, 1-14.

Koegel, R.L., & Covert,A. The relationship of self-stimulation to learning in autistic children. Journal of Applied Behavior Analysis, 1972, 5, 381-387.

Lovaas, O.I., Litrownik, A., & Mann, R. Response latencies to auditory stimuli in autistic children engaged in self-stimulatory behavior. Behavior Research and Therapy, 1971, 9, 39-49.

Lovaas, O.I., Schaeffer, B., & Simmons, J.Q. Building social behavior in autistic children by use of electric shock. Journal of Experimental Research in Personality, 1965 1, 99-109.

Mulhern, T., & Baumeister, A. An experimental attempt to reduce stereotype by reinforcement procedures. American Journal of Mental Deficiency, 1969, 74, 69-74.

Repp, A.C., Deitz, S.M., & Speir, N.C. Reducing stereotypic responding of retarded persons by the differential reinforcement of other behavior. American Journal of Mental Deficiency, 1974, 79, 279-284.

Risley, T. The effects and side effects of punishing the autistic behavior of a deviant child. Journal of Applied Behavior Analysis, 1968, 1, 21-34.

APPENDIX A

Phase C Conversation Questions

1. What did you do in school today?
2. What did you do last night?
3. What kind of things do you like to do in the summer?
4. Who all have you talked to today already?
5. Who's all in your class at school?
6. When did you last go to Des Moines?
7. Do you like summer better or winter?
8. What do you have to do in the winter before you go outside?
9. What did you listen to last on TV?
10. What are some of the boys' names upstairs?
11. Who's working today on the ward?
12. Do you like shorts better or long pants?
13. What's your favorite kind of ice cream?
14. What's your favorite food?
15. What do you do when you go on a picnic?
16. Who all have their beds near your in the dorm?
17. Do you like to travel by bus, van, or car better?
18. Can you tell me a short story?
19. Who's your teacher at school?
20. Can you tell me what you do when you go bowling?
21. Can you tell me what you do when you go swimming?
22. What do you like to play on when you're on the playground?
23. What did you do last time you went to Des Moines/Perry?
24. What would you like to buy at the Canteen this week?

25. What did you buy at the Canteen last week?

26. What kind of music do you like?

27. What instruments do you like to listen to?

28. What did you have for breakfast today?

29. What did you have for dinner last night?

30. What did you have for lunch today?

APPENDIX B

Phase D Praise Cards

1. "_____, that's really good when you're not moving your ____."
2. "Oh, I like it when you're not _____ your _____."
3. "Oh, that's good!"
4. "Boy, _____, that's nice when your _____isn't/aren't moving."
5. "Oh, _____, I like it when your _____ isn't/aren't moving."
6. "I really like it when you're not moving your _____."